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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/352,362	07/13/1999	SHUNPEI YAMAZAKI	0756-1996	2149
31780	7590	03/22/2005	EXAMINER	
ERIC ROBINSON			DIAZ, JOSE R	
PMB 955			ART UNIT	
21010 SOUTHBANK ST.			PAPER NUMBER	
POTOMAC FALLS, VA 20165			2815	

DATE MAILED: 03/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 09/352,362	Applicant(s) YAMAZAKI ET AL.	
	Examiner José R. Díaz	Art Unit 2815	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 06 January 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 15-24, 28, 30-41, 46-115 and 123-178 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 15-24, 28, 30-41, 46-115 and 123-178 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>12/1/04</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Double Patenting*

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claim 15-24, 28, 30-41, 46-115, and 123-178 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 6-8, 17-22, 25, 49-85 of copending Application No. 10/081,767 in view of Sato et al. (US Pat. No. 5,869,387).

Regarding claims 15-24, 28, 30—31, 34-35, 46-48, 53-55, 60-62, 67-69, 74-76, 81-83 and 177-178, claims 6-8, 49, 54 and 66 of the copending Application teaches the steps of:

adding an element for facilitating crystallization of an amorphous layer (see claims 6-8 of the copending Application);

performing a first heat treatment (see claims 6-8 of the copending Application);

irradiating a laser light (see claims 6-8, 9, 27, 38, 49, 54 and 66 of the copending Application); and

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carrying out a second heat treatment (see claims 6-8 of the copending Application).

However, the claims of the copending Application fails to teach a reducing atmosphere and a temperature range of 900 °C to 1200 °C. Sato et al. teaches that it is well known in the art to treat a monocrystalline semiconductor film in a nitrogen atmosphere at a temperature of about 1200 °C (col. 1, lines 45-52) or alternatively in a reducing atmosphere comprising hydrogen at a temperature of less than about 1200 °C (col. 38, lines 16-25 and 40-43). Therefore, it would have been obvious to one having ordinary skill in the art at the same time the invention was made to modify the copending Application to include heating in a reducing atmosphere comprising nitrogen or hydrogen at a temperature range of 900 °C to 1200 °C. The ordinary artisan would have been motivated to modify the copending Application in the manner described above for at least the purpose of flattening the surface of the substrate.

Regarding claims 32 and 33, claim 8 of the copending Application teaches the further step of etching the crystallized semiconductor film after the step of irradiating the film.

Regarding claims 36-41, claims 17, 56, and 68 of the copending Application teaches the limitation that said heating step is carried out by furnace annealing.

Regarding claims 49-52, 56-59, 63-66, 70-73, 77-80, 84-87, claims 17-18, 21, 49-50, 54-57, 60, and 66-69 of the copending Application teaches the further limitation that the crystallizing step is carried out by irradiating an infrared light and/or ultraviolet light.

Regarding claims 88-115, and 123-176, claims 53, 65, and 77 of the copending Application the further limitation that the semiconductor device is a video camera, a digital camera, a projector, a head mount display, a car navigation system, a personal computer, and a portable information terminal.

This is a provisional obviousness-type double patenting rejection.

3. Claims 32-33, 60, 62-63, 67 and 69-70 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 39 and 45 of copending Application No. 09/352,194.

Regarding claim 32, claim 39 of the copending application teaches the limitations of: forming a semiconductor film comprising silicon over a substrate (see line 3 in claim 39 of the copending application); irradiating a laser light to crystallize the semiconductor film (see lines 6-7 in claim 39 of the copending application); etching the crystallized semiconductor film to remove an oxide therefrom (see lines 8-9 in claim 39 of copending application); and heating the crystallized film in a reducing atmosphere to form a flattened (i.e. leveling) surface (see lines 10-12 in claim 39 of the copending application).

Regarding claim 33, claim 45 of the copending application teaches the limitations of: forming a semiconductor film comprising silicon over a substrate (see line 3 in claim 45 of the copending application); irradiating a laser light to crystallize the semiconductor film (see lines 6-7 in claim 45 of the copending application); treating the crystallized semiconductor film with hydrofluoric acid (see lines 8-9 in claim 45 of copending

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application); and heating the crystallized film in a reducing atmosphere to form a flattened (i.e. leveling) surface (see lines 10-13 in claim 45 of the copending application).

Regarding claims 60, 62-63, 67 and 69-70, claims 39-40 and 45-46 of the copending application teaches the limitations crystallizing in a atmosphere containing an inert atmosphere (see line 10 in claim 40 and line 11 in claim 46 of the copending application) or containing oxygen (consider lines 11-12 in claim 39 and lines 11-12 in claim 45 of the copending application).

### ***Response to Arguments***

4. Applicant's arguments, see remarks, filed January 6, 2005, with respect to the rejection(s) of claim(s) 15-24, 28, 30-115, 123-178 under §102(b) and §103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground of rejection is made in view of the copending Application No. 09/352,194.

### ***Terminal Disclaimer***

5. The terminal disclaimer filed on December 1, 2004 disclaiming the terminal portion of any patent granted on this application, which would extend beyond the expiration date of U.S. Patent Number 6,559,036 B1 has been reviewed and is accepted. The terminal disclaimer has been recorded.

***Correspondence***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to José R. Díaz whose telephone number is (571) 272-1727. The examiner can normally be reached on Monday through Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on (571) 272-1664. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JRD  
3/18/05

  
TOM THOMAS  
SUPERVISORY PATENT EXAMINER